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Wisdom in relation to ecopsychological self

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Abstract
Theoretical and empirical studies on wisdom continue to interest researchers in various fields. Studies have long pointed out the empirical operationalization of the construct, which has been speculated on since ancient Greece. In addition to numerous theoretical conceptualizations and operational measures, investigations between wisdom and other variables such as positive human traits, dispositional, situational, and environmental variables have helped us understand the concept better. The wisdom development model (Brown 2004) and empirical research in later years provide adequate evidence about the concept. Current descriptive findings support the theoretical assertions that wisdom and environmental sensitivity are associated. We also found statistically significant correlations between the ecopsychological self and wisdom. Based on the findings, we suggest that wiser people have more holistic and richer viewpoint of life with a commitment to the common good for all, including the environment.

Keywords Wisdom · Wisdom development · Ecopsychology · Ecopsychological self · Positive psychology

Wisdom in Relation to the Ecopsychological Self

Wisdom is described as the knowledge gained by experience (Taranto 1989) and recognized as one of the utmost human virtues (Walsh 2014). However, the essence of knowledge and its intentional use for humanity is only a small part of what is meant by wisdom. Moreover, knowledge transmitted in formal schooling is even a smaller portion of our general knowledge body. Thus, constraining wisdom solely with knowledge is a poor operationalization of the concept. It is also an incomplete interpretation that knowledge alone is sufficient for success in life. Modern youth are pushed to keep up with the constant change of knowledge rather than acquiring the skills that they need to contribute to themselves and the society. Wisdom investigations draw attention to the efforts made to reach the maximum of human potential. Contrary to their ancestors, modern societies lack purpose, deal with instantaneous problems, live in uncertainty, and struggle to find their ways in darkness (Bauman 2017). The dominance of fluid modernity has not only made uncertainty a condition of life, but it also requires much specialization. In a sense, contemporary wisdom studies spurt out as a response to such extreme specialization (Csikszentmihalyi and Rathunde 1990). In short, more wisdom is required to comprehend wisdom (Sternberg 1990).

The Philosophy of Wisdom

Aristotle stated that desire to know was a fundamental characteristic of human nature (Foucault 2016). Plato claimed that "real knowledge" could only exist in the world of ideals and be attained by a small minority through higher levels of intellectual ability (Durak 2009a). Farabi associated wisdom with reason and developed a more systematic classification of the *virtue of thinking*, which included "practical reason," "practical wisdom," "mind," "excellence of thought," and "true vision." In his view, wisdom is "the virtue acquired by making efforts to search and find that is the most beneficial for the mankind, the society, and the world" (Durak 2009b, p. 239). Information is pragmatic to the extent to which it serves a purpose, if not, it is only theoretical or speculative (Coomaraswamy 2012).

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According to Schopenhauer (2014), the main purpose of man is pragmatic and that wisdom is abstract, intuitive, and a state of the world that is presented to the mind. He claims that the rule, state, and practice are the same in *intuitive knowledge*. Thus, wisdom is the "real life view." "The right view" is derived from one's world of perception, instead of the abstract concepts and is associated with intuition; in other words, the accuracy and deepness of understanding (Schopenhauer 2014, p. 59). Since ancient Greece, philosophers have described wisdom as a practice of virtue and knowing (i.e. practical wisdom) which are abstract and intuitive aspects that lead to happiness.

The Definition of Wisdom

Wisdom is the "power of judging rightly and following the soundest course of action based on knowledge, experience, and understanding" (Webster's New World College Dictionary, 1997, p.1553, as cited in Sternberg 1998). Staudinger and Baltes (1996) define wisdom as "expert-level knowledge and judgment in the fundamental pragmatics of life" (p. 747). Whereas for some, wisdom is being able to produce solutions to daily problems; for others, it is to produce novel ideas. For us, wisdom covers all. Many perceive those who are prominent in life as wise. For example, MacDonald (1993) defines self-actualized and transcendent people as wise and argues that those who described as wise by Maslow are those who own integrity, perfection, justice, beauty, kindness, uniqueness, honesty, truthfulness, and self-efficacy. According to Kramer (2000), wisdom is an excellent reasoning power over human relationships; however, it is expressed as a high potential for thinking based on phenomenological and dialectical reasoning and an unusual view towards human dichotomies in terms of the contemporary theories of psychology. Wisdom is also "a process of learning from life" through which people reflect, integrate, and apply what they learn from formal schooling as well as informal experiences (Greene and Brown 2009, p.293). Wisdom is the ability to use knowledge to arrive balanced judgments (Sternberg 1998). In sum, wisdom is a form of knowing; however, there are three characteristics that distinguish it from other cognitive constructs such as intelligence and creativity: Wisdom (1) deals with permanent universal truths, not only the visible aspects of transient facts; (2) is an attempt to understand how different dimensions of reality are related to each other; and (3) is a hierarchy of truths and actions towards them (Csikszentmihalyi and Rathunde 1990, p.28).

The Conceptualization of Wisdom

Beliefs about wisdom among laypersons are classified as the *implicit theories* whereas theorists' and researchers' assertions are classified as the *explicit theories* (Sternberg 1998). Traditionally, wisdom is referred to a more desired and meaningful life as lived by saints or heroes (Singer 2010). According to the distinction made by Baltes and Smith (1990), judgement is important in terms of implicit theories whereas criteria such as wider, "rich factual knowledge or procedural knowledge, life-span contextualism, relativism, and uncertainty management" are important in explicit theories (p. 95). Within the implicit context, wisdom is (1) different from related-psychological constructs such as maturity, creativity, or intelligence; (2) an extraordinary level of human functionality; (3) a mental and behavioral state involving the interaction between intellectual, emotional, and motivational factors of human functioning; (4) a personal and interpersonal competence; and (5) humane characteristics such as taking care of one's own and others' wellbeing (Baltes and Staudinger 2000). Baltes' and the philosophers' views of wisdom are similar in that both refer to a cognitive view of knowledge that carries a wider meaning of realist and descriptive knowledge provided by science (Banicki 2009).

Explicit wisdom is differentiated from intelligence and creativity in six aspects (Sternberg 1990, p.152):

> "An understanding of its presuppositions and meaning as well as its limitations (*knowledge*); an understanding of what is automatic and why (*processes*); *primary intellectual style* (judicial); an understanding of ambiguity and obstacles (*personality*); an understanding what is known and what it means (*motivation*) and a deeper understanding and appreciation of the environment (*environmental context*)."

According to Csikszentmihalyi and Rathunde (1990), wisdom has three dimensions: cognitive process, value, and a state of goodness. Maxwell (1980) makes a distinction between personal and social wisdom and argues that knowing and understanding are the main components of wisdom. He defines wisdom as a potential for discovering and achieving what is valuable in life for the self and others. Wisdom is accessible as a result of intellectual query, which helps create more valuable lives and a better world (Maxwell 1980). He points out that intellectual priority is not only to be used with our difficulties but it is also to help us identify, predict, and explain the phenomena.

There is no clear distinction between knowledge and wisdom (Csikszentmihalyi and Rathunde 1990) and these terms are sometimes used interchangeably, which contradicts with the views of philosophers who argue that wisdom is more closely associated with practical knowledge. Otherwise, modern men who have the ease and luxury of accessing unlimited amount of information would be inaccurately called the wisest of mankind.

Psychological studies on wisdom are relatively more recent. Increasing interest in wisdom studies is partly as a result

of increasing interest in positive human traits in current psychology (Takahashi 2000). In recent studies, wisdom is regarded as strength of humankind (Aspinwall and Staudinger 2003). The developmental model that views wisdom as "a learning process from life" reflects, integrates, and applies what people learn in-and-out of schools has been extensively tested on college populations (e.g., Brown and Greene 2006; Greene and Brown 2009).

The testability of Brown's (2004) model – although researchers call for more research on it – is promising for studies on the development of wisdom in younger generations and for the design of educational models.

It is important to approach wisdom from a developmental perspective so that its growth can be better traced and comprehended (Meeks, and Jeste 2009). Age-related arguments are mostly adopted by the developmental psychologists (Simonton 1990); but, there is no definitive evidence of linear increase in wisdom with age. Age is found to correlate positively with wisdom in some studies (e.g., Labouvie-Vief 1990; Takahashi 2000; Baltes and Baltes 1990; Takahashi and Overton 2002; Singer et al. 2007), even though others argue that there is still not adequate proof regarding age differences on wisdom (Webster 2007). Baltes (1997) reported that younger adults performed as well as older adults in wisdom-related subjects. At this point, a possible distinction needs to be made between wisdom and knowledge associated with wisdom and between mainstream and extraordinary populations. Rather than a linear increase, age under certain conditions may contribute to the development of wisdom (Staudinger 1999). According to Baltes and Smith (2008), each life stage has its own contribution to wisdom-related knowledge. Changes that support wisdom development such as personal experiences and that impede it such as decline in cognitive processes and lesser flexibility might account for the effects of age in wisdom (Staudinger 1999). For now, it seems difficult to reach a consensus between philosophy and psychology or between past thinkers and contemporary scientists. The difficulty partly arises from the fact that wisdom is a construct difficult to constrain with the methods and concepts of psychology (Baltes and Staudinger 2000).

The Assessment of Wisdom

Because of its complex and multi-dimensional nature, wisdom is difficult to describe, operationalize, and quantify (Wink and Helson 1997). Nonetheless, a few methods and tools have been introduced over the years. Some wisdom tools are self-assessment instruments such as the Wisdom Developmental Scale (WDS; Brown and Greene 2006; Greene and Brown 2009), the Transcendent Wisdom Ratings (TWR) for older adults (Wink and Helson 1997), the evaluation question that makes it possible to assess wisdom in smaller samples (Mickler and Staudinger 2008), 3-Dimensional Wisdom Scale (3D-WS; Ardelt 2003), and the Multidimensional Self-assessed Wisdom Scale (SAWS; Webster 2003). Among them, only 3D-WS was recently adopted to the Turkish context (Borhan 2017). However, because of its developmental approach and appropriateness to the purpose of our research, we opted to translate, adapt, and validate the WDS for the Turkish population in the current study.

Wisdom and Ecopsychology

Studies have assessed wisdom as a superior human potential in terms of cognitive, affective, and reflective aspects and found that it is associated with positive human traits such as forgiveness, psychological wellbeing (e.g., Taylor et al. 2011), life satisfaction (e.g., Takahashi and Overton 2002; Ardelt 1997), openness to experience (e.g., Staudinger, Lopez, and Baltes 1997), and self-efficacy, self-acceptance, emotional competence, and empathy (e.g., Glück et al. 2013).

Sensitivity to the environment is one of the prominent characteristics of the wise (MacDonald 1993). From one perspective, wisdom is "the approach of choice to such contemporary problems as the escalation of nuclear power, concentration of energy in any form, pollution, creation and cessation of life, and the issues of social inequality" (Csikszentmihalyi and Rathunde 1990, p. 84). Kunzmann and Baltes (2003) incorporate environmental protection into value orientation and Sternberg (1998) grounds his balance theory on implicit knowledge, which is a heuristic (intuitive) method (as cited in Key and Kerr 2011). Knowing implicitly is a way of recognizing the integrity of something intuitively. According to Polanyi, complete knowledge is a combination of "subsidiary" and "focal" factors (Key and Kerr 2011, p. 62). Balance is the person's context rather than internal processes and common good is achieved by the implementation of tacit knowledge through values. Thus, it involves balancing between one's personal interests and interpersonal (or extrapersonal) factors involving the environment (Sternberg 1998).

Achenbaum and Orwoll (1991) classify affective, cognitive, and conative dimensions of wisdom for the intrapersonal, interpersonal, and transpersonal aspects, respectively in their synthetic model. The importance of this classification is the argument that wisdom has a transpersonal dimension in addition to affective, cognitive and conative dimensions involving self-transcendence, awareness of the boundaries of knowledge, and spiritual interpretation. This viewpoint is consistent with MacDonald's (1993) spiritual conceptualization of wisdom that describes perceiving existence as unity and understanding it from a holistic perspective. Even though there has never been a complete consensus, spirituality has always been a part of the ecopsychology literature (Davis 2011).

Csikszentmihalyi and Rathunde's (1990) evolutionary hermeneutic approach defines wisdom as a holistic cognitive process. Gadamer assumes that the basis of hermeneutic knowledge is to understand what is not seen (Fırıncıoğulları 2016). This suggests that hermeneutic interpretation and heuristic point of view are also parts of wisdom. Involving incorporation and management, John and MacDonald's (2007) ecopsychological explanation is consistent with the views of hermetic thinking (Kılıç 2010). points out that "ecopsychology proceeds from the assumption that at its deepest level, the psyche remains sympathetically bonded to the Earth" (as cited in John and MacDonald 2007, p. 48). From this perspective, tacit knowledge may be used to explain the relationship between wisdom and the environment as a common ground of nature-integrated heuristic thinking and hermetic knowledge. The wise is able to contemplate on the cosmos, skies, symbols, and causalities; recognize their sources under the higher part of his existence and divine influences; and understand their affinity with other elements (Kılıç 2010). Although this interpretation of the self may be achieved in different ways within different religions, beliefs, and traditions, the hermetic interpretation is a teaching of human-cosmos relation. Wisdom is not about transient events but about universal realities (e.g., Csikszentmihalyi and Rathunde 1990). Thus, it does not seem possible to keep it out of the nature and universal truth. Therefore, the purpose of the current study was to empirically test theoretically anticipated relationships between ecopsychology and wisdom in the Turkish population. Within the scope of this purpose, we adapted wisdom and ecopsychology instruments into Turkish and empirically tested the psychometric properties of the Turkish versions. Afterwards, we tested the multivariate relationships between wisdom and ecopsychology.

Method

The scope of the study is people living in Turkey. Participants were selected using convenience sampling because we aimed to collect data from a wide range of individuals in a short time span. The sample included college students (i.e., student sample) and adults (i.e., adult sample) living in different parts of the country.

Sample

The validity and reliability of the Turkish versions of the Wisdom Development Scale (WDS) and the Nature Inclusive Measure (NIM) were conducted with a total of 1205 Turkish residents of whom 712 were college students (59.1%) and 493 were adults (40.9%). Because of distinct developmental and experiential characteristics of college students and adults, these sub-groups were investigated independently. In addition, we repeated the analyses for the combined sample. Table 1 shows the demographic information gathered from the two sub-samples and the combined sample. Of all the participants, 644 (%53.9) were males and 551 (%46.1) were females. Participants' ages ranged from 18 to 67 years old ($\bar{x}$= 27.02, sd = 10.36). Fifty five participants did not provide their age information (4.56%).

Instruments

The Wisdom Development Scale (WDS) The WDS includes 66 Likert-type items under 7 sub-scales developed by Brown and Greene (2006) to assess wisdom levels as conceptualized by Brown (2004). Items are rated on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree) and higher scores refer to higher levels of wisdom on their respective subscales. The scale's Cronbach alpha internal consistency coefficients were found to be .84 (Self-Knowledge), .87 (Altruism), .84 (Life Knowledge), .84 (Emotional Management), .88 (Inspirational Engagement), .88 (Judgment), and .88 (Life Skills) (Brown and Greene 2006). Confirmatory factor analysis showed a promising structure: $X^2/df = 7.79$, CFI = .74, and RMSEA = .05 (Greene and Brown 2009). Cronbach alpha coefficients were found to exceed conventional threshold for reliability in the present study (see Table 4).

The Nature Inclusive Measure (NIM) Eleven-item NIM aims to assess people's feelings on the integration with the nature (John and MacDonald 2007). As its reliability evidence, Cronbach alpha coefficients were for to be .86 for the Nature

Table 1 Demographic Distribution of the Student Sample, and Adult Sample, and Combined Sample

		Student Sample		Adult Sample		Combined Sample	
		n	%	*n*	%	*n*	%
Gender	Male	398	55.9	246	49.9	644	53.9
	Female	304	42.7	247	50.1	551	46.1
	Not Specified	10	1.4	–	–	10	0.8
	Total	712	59.1	493	40.9	1205	100

Inclusiveness and .75 for the Nature Stewardship subscales. In addition, item-total correlations ranged from .55 to .72 for the Nature Inclusiveness and .49 to .55 for the Nature Stewardship subscales. Confirmatory factor analysis evidenced the construct validity of the NIM: $X^2/df = 2.91$, GFI = .95, and CFI = .95 for the Nature Inclusiveness subscale and $X^2/df = 1.12$, GFI = .98, and CFI = .99 for the Nature Stewardship subscale (John and MacDonald 2007). In the present study, Cronbach alpha coefficients were found to be in the higher .80s (see Table 4).

Procedure

Copyright holders were contacted via e-mail and their written permissions were obtained to use the scales for research purposes. IRB approval had been received before the research package was administered. The original English items were translated into Turkish by English-speaking *language experts* who were also native Turkish speakers. Translated items were evaluated by three independent experts of whom two were in the field of counseling and one was in the field of curriculum, whose English proficiencies were evidenced by standardized English as a second language test scores. These experts unanimously agreed that the translations were satisfactory. Moreover, one field expert back-translated the translated Turkish items into English. The back-translated English items and the original English items were rated equivalent by three other independent experts. Minor revisions were made on a few items based on the expert suggestions and the final versions of the Turkish scales were attained.

Student participants were studying in a state university in the central Black Sea region. Students were informed about the general purpose of the study and volunteers took part in the research by responding to the measures in groups during their class hours. No extra credit was given for participation. Adult participants were contacted in their home environments by the researchers and data were collected individually. Both samples were debriefed after the completion of the packages.

Data Analysis

Data were pre-screened and 18 incomplete surveys (1.5% of the total sample) were excluded from the dataset because they were not usable. Statistical Package for the Social Sciences (SPSS) with AMOS was used for data analysis. Before the main analyses, outliers were screened and a total of 35 outliers were excluded from further analyses (2.9% of the total sample). An analysis of the missing values and outliers showed that their distributions were random; therefore, the missing values posed no serious problems with the data. Construct (structural) validity of the Turkish versions was tested by confirmatory factor analysis. Maximum likelihood (ML) estimation method was used in confirmatory analyses. Structural equation modeling was used to investigate the multivariate relationship between wisdom and ecopsychology.

Results

Adaptations of the WDS and NIM

Structural Validity The subscales of the WDS and NIM were treated as independent measurement models. Each measurement model was specified, estimated, and evaluated. All measurement models and the structural model for the WDS and NIM were confirmed as indicated by exceeding conventional threshold fit indexes (see Table 2 and Table 3, respectively).

Table 2, Table 3, Fig. 1, and Fig. 2 showed that all fit indices were close to 1.00 and the measured variables loaded significantly on their respected latent variables. As a result, it was concluded that the factorial structures of the WDS and NIM were confirmed.

Reliability Cronbach alpha internal consistency coefficients were used to determine the reliability of the scales. Cronbach alpha coefficients, means, and standard deviations are presented in Table 4. All reliability coefficients were above the conventional threshold values; therefore, they indicated the internal consistency of the scales' items.

Relationships between Wisdom and the Ecopsychological Self

Table 5 shows that all the components of wisdom are significantly and positively related to both the Nature Inclusiveness and Nature Stewardship of ecopsychological self in the combined sample and student sample. However, in the adult sample, self-knowledge and willingness to learn were not related to nature inclusiveness and no wisdom component, except life knowledge, was related to nature stewardship.

Because both wisdom and the ecopsychological self are multidimensional constructs, structural equation modeling was used to determine the multivariate relationship between them. The hypothetical model that included two ecopsychological self components and six wisdom components were, set in a bidirectional relationship, was specified, estimated, and evaluated. Parameter estimates of the hypothetical model were presented in Fig. 3.

The goodness of fit indexes (CFI = .95, NFI = .95; GFI = .95) showed that the hypothetical model was a good fit with the data (Bentler and Bonett 1980; Hair et al. 2006; Widaman and Thompson 2003; Bentler 1990). Figure 3. shows that there are positive relationships between the dimensions of wisdom and the dimensions of the ecopsychological self. The strongest relationship was between interpersonal

Table 2 Goodness of Fit Indexes* of the WDS

		Combined Sample	Adult Sample	Student Sample
The Wisdom Development Model	X^2/df	2.74	1.39	2.39
	GFI	.84	.77	.80
	IFI	.89	.83	.87
	CFI	.89	.83	.87
	RMSEA	.04	.05	.05
Self-Knowledge	X^2/df	10.84	2.34	9.73
	GFI	.99	.99	.98
	IFI	.99	.99	.98
	CFI	.99	.99	.98
	RMSEA	.10	.06	.12
The Emotional Model	X^2/df	7.64	4.78	8.81
	GFI	.92	.92	.90
	IFI	.89	.87	.89
	CFI	.89	.87	.89
	RMSEA	.10	.10	.11
The Altruism Model	X^2/df	11.03	4.78	8.81
	GFI	.90	.90	.87
	IFI	.88	.87	.87
	CFI	.88	.87	.87
	RMSEA	.10	.10	.11
The Inspirational Engagement Measurement Model	X^2/df	12.04	5.01	8.71
	GFI	.92	.92	.92
	IFI	.89	.87	.89
	CFI	.89	.87	.89
	RMSEA	.10	.10	.11
The Judgment Model	X^2/df	12.09	5.33	8.56
	GFI	.94	.94	.93
	IFI	.92	.90	.92
	CFI	.94	.90	.92
	RMSEA	.11	.11	.11
The Life Knowledge Model	X^2/df	19.09	8.52	12.48
	GFI	.86	.84	.86
	IFI	.82	.76	.82
	CFI	.82	.76	.83
	RMSEA	.14	.14	.14
The Life Skills Model	X^2/df	16.45	5.74	12.47
	GFI	.86	.89	.84
	IFI	.85	.83	.83
	CFI	.85	.83	.83
	RMSEA	.13	.11	.14
The Willingness to Learn Model	X^2/df	24.40	12.15	13.26
	GFI	.95	.94	.96
	IFI	.92	.88	.93
	CFI	.92	.89	.93
	RMSEA	.15	.17	.14

*GFI: goodness-of-fit index; IFI: incremental fit index; CFI: comparative fit index; RMSEA: root mean square error of approximation

Table 3 Goodness of Fit Indexes* of the NIM

		Combined Sample	Adult Sample	Student Sample
The Nature Inclusive Model	X^2/df	8.96	4.63	5.83
	GFI	.96	.95	.94
	IFI	.96	.96	.96
	CFI	.96	.96	.96
	RMSEA	.08	.09	.08
The Nature Inclusiveness Model	X^2/df	3.32	2.89	1.44
	GFI	.99	.99	.99
	IFI	.99	.99	1.00
	CFI	.99	.99	1.00
	RMSEA	.05	.06	.03
The Nature Stewardship Model	X^2/df	2.74	2.74	1.61
	GFI	1.00	1.00	1.00
	IFI	1.00	1.00	1.00
	CFI	1.00	1.00	1.00
	RMSEA	.04	.04	.03

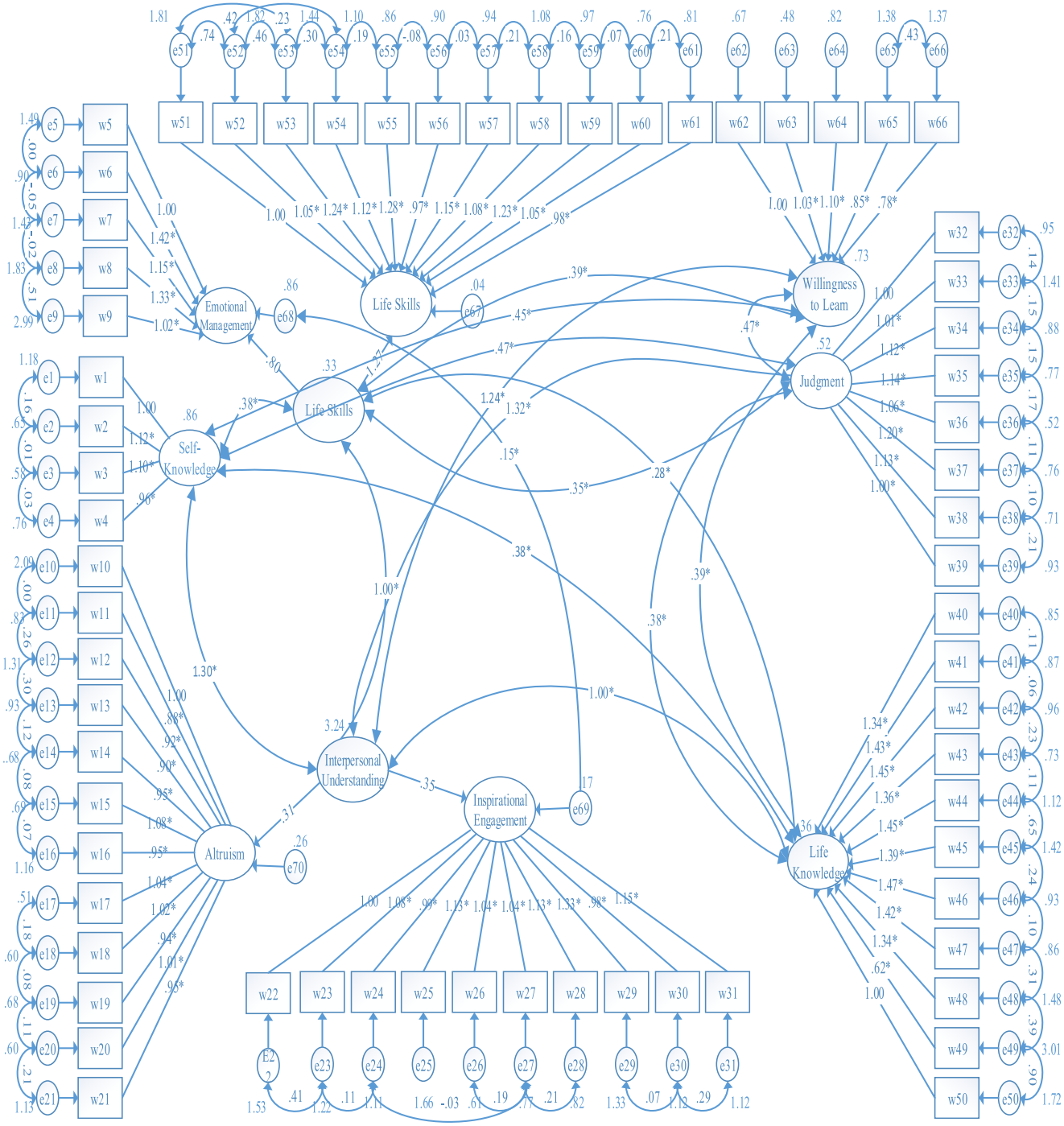
*GFI: goodness-of-fit index; IFI: incremental fit index; CFI: comparative fit index; RMSEA: root mean square error of approximation

understanding and nature inclusiveness ($r = .44$, $p < .05$). The weakest relationship was between self-knowledge and nature stewardship ($r = .19$, $p < .05$).

Discussion

The present study was the first attempt to validate a wisdom development model and an ecopsychological self model in the Turkish literature. Because of different characteristics of students from adults, we decided to analyze these sub-groups independently. We also tested all the models on the combined sample. The ratio of two samples (i.e., students to adults) was approximately 3 to 2. Participants came from a relatively wide age range (range = 49 years) and although slightly more males than females participated, both genders are well represented. Therefore, we conclude that the study sample adequately represent the Turkish population, even though we used convenience sampling method in the study.

Results confirmed the factor structures of both scales and internal consistencies were acceptable for both students and adults. Thus, we conclude that the WDS and the NIM are valid and reliable measures in assessing the levels of wisdom and the ecopsychological self in the Turkish population, respectively. These findings are the first in the wisdom and ecopsychology literature in Turkey and need for further confirmation. Additionally, further validity (i.e., concurrent, predictive, and discriminant) and reliability (test-re test and parallel form) studies are necessary. Nonetheless, our initial validation of these tools in a non-Western culture is consistent



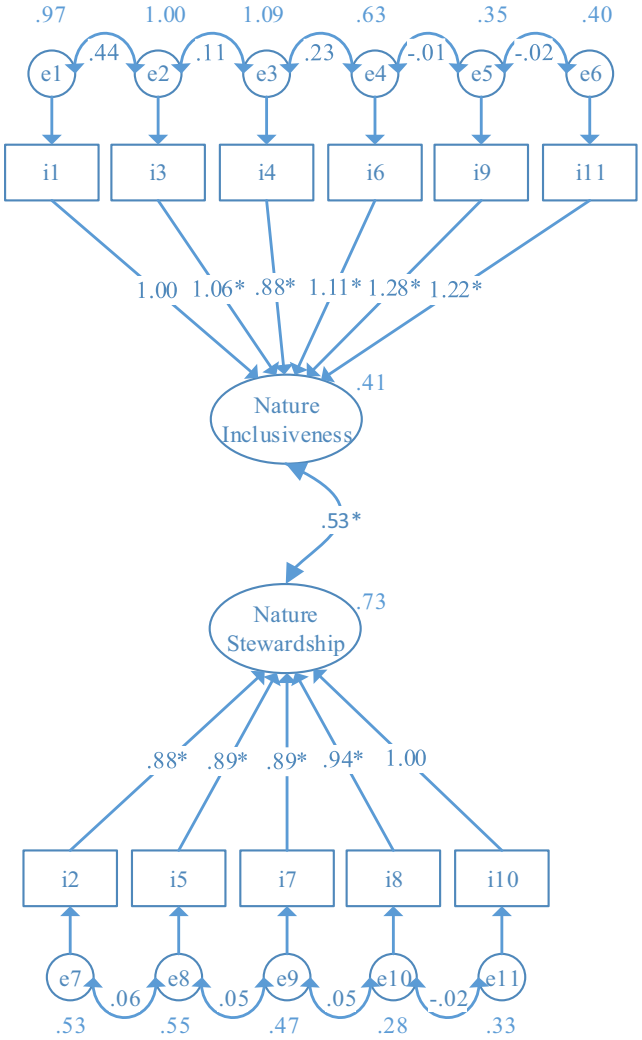
*$p < .05$.

Fig. 1 Confirmatory Factor Analysis Model of the WDS

with the sentiments about their cross-cultural applicability and empirical testability.

Considering the multidimensionality of both constructs, wisdom had modest relationships with the ecopsychological self. The structural model showed that the weakest relationship was between self-knowledge and nature stewardship whereas the strongest relationship was between interpersonal understanding and nature inclusiveness. In other words, shared variabilities between the components of wisdom and the ecopsychological self ranged from 20% to 44%. According to conventional effect size interpretations, these values correspond to medium to large relationships (Cohen 1988).

Among the components of wisdom, self-knowledge is awareness of one's strengths/weaknesses and knowledge of



*$p < .05$.

Fig. 2 Confirmatory Factor Analysis Model of the NIM

his/her interests/values whereas interpersonal understanding is more related to traits such as empathy and helpfulness (Greene and Brown 2009). Other components such as judgment, life-skills, life-knowledge, and willingness to learn are considering others' viewpoints while deciding and looking for alternative ways; effectively managing different roles and responsibilities in daily life; noticing the interconnection between people and the nature, knowledge and ideas; and the acknowledgement of what the person learns humbly and is interested in to continue learning, respectively.

The relationship between wisdom and the ecopsychological self, which points to a transpersonal and spiritual context described by John and MacDonald (2007) as "the expansion of self to include our natural world" (p.50), was found to be associated with the spiritual perspective towards wisdom. Achenbaum and Orwoll (1991)'s wisdom model involves intrapersonal, interpersonal, and transpersonal dimensions. Transpersonal dimension is more apparent in affective, cognitive, and conative facets. Current findings specifically support MacDonald (1993)'s conceptualization that perceives existence as unity from a holistic perspective. Considering that the intuitive facet of wisdom is the superior development potential (Taylor et al. 2011), nature-integrated human view of ecopsychology can only be achieved by a limited number of individuals. The hermetic explanation of cosmos and human relation (e.g., Kılıç 2010) makes us think that those who are deliberate on the search and discovery of wisdom are those who have higher levels of the ecopsychological self. Current results do not only support the spiritual view, which describes wisdom as unity and wholeness (MacDonald 1993), but also confirm the balance theory of Sternberg (1998) with reference to individuals' efforts to reach the common good for all in their relations with others.

Nature inclusiveness is a sense of self related to unity whereas nature stewardship is the protection of and sensitivity

Table 4 Means, Standard Deviations, Cronbach Alpha Coefficients, and Bivariate Correlations of Wisdom and the Ecopsychological Self

	Combined Sample ($n = 1152$)			Student Sample ($n = 676$)			Adult Sample ($n = 476$)		
	$\bar{x}$	sd	α	$\bar{x}$	sd	α	$\bar{x}$	sd	α
Wisdom Development Scale									
Self-Knowledge	22.17	4.30	.83	21.29	4.36	.84	23.54	3.82	.80
Altruism	70.31	9.55	.88	69.17	9.90	.89	72.07	8.69	.85
Life Knowledge	60.01	9.75	.86	58.67	10.00	.87	62.10	8.96	.82
Emotional Management	21.62	6.84	.82	20.64	6.68	.81	23.13	6.82	.81
Inspirational Engagement	54.14	9.11	.86	52.98	9.40	.88	55.93	8.33	.82
Judgment	45.74	6.95	.86	44.80	7.24	.88	47.18	6.21	.80
Life Skills	59.87	10.12	.88	57.69	10.43	.89	63.25	8.60	.84
SWillingness to Learn	29.25	4.71	.79	28.44	4.89	.80	30.50	4.11	.75
Nature Inclusive Measure									
Nature Inclusiveness	23.26	4.94	.85	23.30	4.25	.80	23.62	5.28	.87
Nature Stewardship	21.17	4.23	.88	21.40	3.36	.81	21.35	4.48	.90

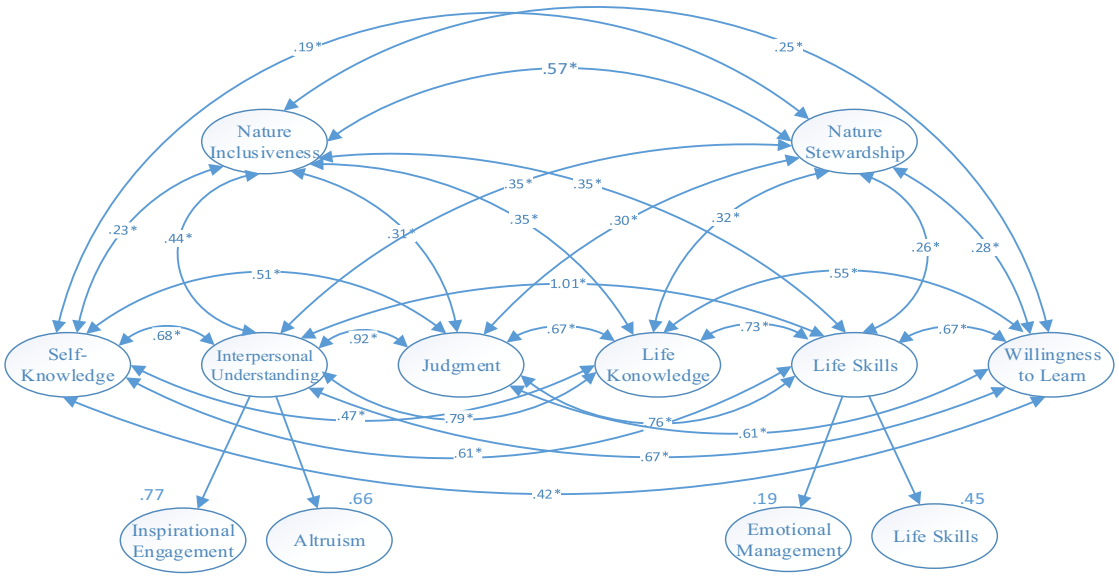
Table 5 Bivariate Correlations between Wisdom and the Ecopsychological Self

		Nature Inclusiveness	Nature Stewardship	Self-Knowledge	Judgment	Life Knowledge	Willingness to Learn	Interpersonal Understanding	Life Skills
Nature Inclusiveness	Combined Sample		.75*	.21*	.22*	.27*	.17*	.27*	.21*
	Student Sample		.75*	.28*	.27*	.32*	.22*	.32*	.24*
	Adult Sample		.75*	.07	.14*	.18*	.07	.19*	.15
Nature Stewardship	Combined Sample	.75*		.15*	.16*	.19*	.13*	.19*	.09*
	Student Sample	.75*		.22*	.21*	.23*	.19*	.25*	.12*
	Adult Sample	.75*		.07	.07	.13*	.04	.07	.03

*$p < .05$. For correlations, effect size is the absolute value of the statistic with values between .10 and .30 being considered small (Cohen, 1992)

towards the nature. Based on the implicit conceptualization of wisdom; caring for the well-being of the self and others (Baltes and Staudinger 2000); finding common good by using tacit knowledge through values, and balancing between personal interests and extrapersonal factors such as the environment (Sternberg 1998) are supported by the current research findings. Wisdom can contribute to finding solutions to problems experienced by people having trouble in establishing relationship with the environment by balancing their interests.

Life knowledge is described as noticing the mutual links between people and the nature, knowledge, or ideas (Greene and Brown 2009). It may be speculated that increased life experience with age is associated with more interest in protecting the environment. According to the results of the current study, this speculation is partly true. Our descriptive results showed that increase on wisdom scores were associated with increase in interest towards the outside world (i.e., the environment); however, we also conclude that other dimensions of wisdom may be related to other aspects of life. It seems that aging leads towards a more holistic approach. On the other hand, scores obtained from nature inclusiveness were found to be related to all dimensions of wisdom except for self-knowledge and willingness to learn. This correlation was higher in the college student sample than the adult sample. Thus, we conclude that the expansion of the self over the nature is associated with spirituality. The relationship between this dimension and the dimensions of wisdom points to the increase in spiritual needs of adults and their perception of the world in this way. The dimensions of wisdom may become more specific and crystalized with age. Therefore, our results support that wisdom is a continuous construct. Variability in wisdom can be accounted by different aspects of life as in relation to nature, and as wisdom scores increase, more specific, crystallized and characterized relationships can arise for



*$p < .05$.
Note. Measured variables and their respected errors are omitted from the figure.

Fig. 3 Structural Model of Wisdom Development and Ecopsychological Self

the associated dimension. In order to test this hypothesis, further research is needed to determine whether there are differences between younger and older samples in different aspects of wisdom.

In sum, this is the first study in Turkey that investigated the relationship between wisdom and the ecopsychological self. However, as a superior human development potential, the importance of wisdom in people's relationships within themselves and with the nature was evidenced in recent ecopsychology research. Starting from ancient Greece, philosophers have focused on the fundamental traditions in the Western and Eastern cultures and wisdom is acknowledged as one of the powerful human traits by positive psychology. However, the lack of interest on the topic in contemporary psychology is remarkable. We hope that this research will spark interest in ecopsychology, wisdom, and their relationship with other psychological constructs in the literature.

Compliance with Ethical Standards

Conflicts of Interest The authors declare that they have no conflict of interest whether they are financial or non-financial. The authors also declare that they have no personal relationships or competing interests directly or indirectly tied to this research.

Ethical Approval The authors declare that all procedures performed in the study were in accordance with the ethical standards of Gaziosmanpaşa University (IRB approval number: 07.01–04) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent The authors declare that informed consent was obtained from all individual participants who willingly participated in the study. All participants gave their informed consent in writing prior to inclusion in the study. No identifying details of the participants published.

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